Fact Sheet

Purpose of this Document

The Utah Division of Solid and Hazardous Waste (the Division) intends to issue a Resource Conservation and Recovery Act (RCRA) Research Development and Demonstration (RD&D) storage and treatment permit to Dugway Proving Ground (Dugway). This document provides a brief description of the permitting process and the permitted activity. The administrative record required by R315-3-24 containing correspondence and other documents used in preparation of this permit is also available for review. R315-3-25 requires the Division to prepare a fact sheet.

Permitting Process

The Division has authority under 19-6-101 through 19-6-123 of the Utah Solid and Hazardous Waste Act to issue permits to persons that store or treat hazardous waste. A permit must be issued before the storage or treatment activity begins. The permitted activity will be storage of chemical agent filled waste munitions prior to treatment and treatment of the chemical agent (Utah waste code P999 and EPA waste code P095) filled munitions and test cylinders in a unit called the Munitions Management Device version 1 (MMD-1). The items to be treated do not contain explosives.

The first step in the permitting process is preparation and submittal of a permit application by the applicant (Dugway). The Division then reviews the application to ensure it meets all requirements of the hazardous waste regulations. After the permit application is revised by the applicant to meet all requirements, the Division issues a notice of completeness and a draft permit for public comment.

The comment period lasts 45 days and a public hearing is held near the end of the comment period. Notice of the comment period is published in local newspapers and is announced on the radio and is sent to persons that have requested to be included on a mailing list maintained by the Division. The Division responds to all public comments and makes changes to the draft permit as necessary. The comment period for this permit started December 15, 1998 and ended February 1, 1999. Public hearings were held January 19, 1999 at 10:00 AM in room 406 of the Cannon Health Building and at 7:00 PM in the auditorium of the Tooele County Courthouse. Written comments regarding the Dugway, RD&D, MMD-1 permit were sent to:

Dennis R. Downs, Executive Secretary, Utah Solid and Hazardous Waste Control Board
P.O. Box 14880
Salt Lake City, Utah 84114-4880

A copy of the permit was available for public inspection during the comment period at:

Utah Division of Solid and Hazardous Waste, 4th Floor Martha Hughes Cannon Building
288 North 1460 West
Salt Lake City, Utah
Hours: 8 AM to 5 PM, Monday through Friday

A public participation document, including all public comments and responses was prepared.

Permitted Activity

The U.S. Army Dugway Proving Ground (Dugway) submitted an application for an RD&D permit for the MMD-1. The MMD-1 is designed as a mobile unit that can be taken to various locations where chemical warfare agent filled munitions need to be removed and demilitarized. Because the MMD-1 is a new type of technology that has not been previously tested, the permitted activity will take place in a test chamber. The research data obtained at Dugway will be used to demonstrate that the resultant chemical agent wastes are reduced in toxicity by the MMD-1 decontamination solutions and methods.

The approximate amounts of mustard (blister), nerve agents and phosgene that will be treated under this permit include:

Agent	Total Agent	Total Items	General Munition Types
Mustard (HD)	300 pounds	17	4.2 inch mortar or equivalent cylinder M47 or equivalent cylinder Other cylinders simulating munitions
Nerve (GB)	150 pounds	47	4.2-inch mortar or equivalent cylinder Stokes mortar or equivalent cylinder Other cylinders simulating munitions
Nerve (VX)	225 pounds	28	155 mm or equivalent cylinder 8 inch projectile or equivalent cylinder Other cylinders simulating munitions
Phosgene (CG)	1,000 pounds	15	155 mm projectile or equivalent cylinder M78 or equivalent DOT cylinder DOT cylinders (various sizes)

The waste treatment process is relatively simple in concept and includes three main steps: 1) placing a munition in the stainless steel cylindrically shaped unit that cuts the munition open and drains the agent. The agent is washed from the munition using a high pressure spray of decontamination solution (monoethanolamine and sodium hydroxide); 2) mixing the agent with excess amounts of decontamination solution and treating the agent in a tank; and 3) sampling and analyzing the waste to determine if treatment is complete and then transferring the waste to holding tanks. The steps listed above are done remotely and are monitored by video cameras and chemical agent monitors from a safe location. Waste residues generated from the process may contain chemical agent at concentrations up to 50 mg/l and may contain metals and other RCRA constituents. The waste will be characterized and sent to an off site hazardous waste incineration facility.

Monitoring

The demilitarization of chemical agents GB, HD, VX and CG by the MMD-1 produces two main waste streams, gas and liquid. Both waste streams are sampled to ensure that the MMD-1 is operating properly and is not releasing agent into the environment.

Gas flow through the waste gas management system is routed through a waste gas treatment system , and ultimately to the atmosphere. This system includes several carbon filtration components. The carbon filters are designed to remove all chemical agent from the waste gas, thereby eliminating all pathways of exposure outside the test facility. Carbon filters that are located at critical points in the process come in pairs. Paired filter units allow for capture of agent by the second filter if agent escapes or breaks through the first filter. Monitoring devices capable of collecting waste gas samples are located between the carbon filters. These samples are used to show that the carbon filters are functioning properly. If agent is detected by a filter monitor, the first filter is removed and replaced as soon as possible.

The liquid waste is sampled and analyzed for chemical agent content at Dugway. The waste is not released from Army control until analysis verifies that the agent concentration in the waste is 50 mg/l or less. If necessary, additional treatment will be done until the 50 mg/l treatment requirement is met. After waste treatment is verified, the waste is analyzed for metals and other RCRA constituents at a commercial laboratory.

Significant Methodological and Policy Questions

During the permitting process for the MMD-1 four methodology issues and two policy issues were identified. The method issues included: (1) the ability of analytical methods to detect chemical agent in solutions designed to decontaminate agent; (2) the ability of the gas processing system to adequately treat chemical agent; (3) the adequacy of and detection level for waste gas monitors; and (4) the treatment level and treatment goal.

The treatment level of 50mg/l is based on best available analytical technology detection limits. The detection of chemical agent in decontamination solution is difficult because the decontamination solution is designed to destroy the agent. This makes it difficult to recover chemical agent at very low levels from quality control samples spiked with chemical agent. The Army expects that by treating the chemical agent for the periods of time as referenced in Table 8-5 of Attachment 2 and at the ratios referenced in attachment 11, the agent will be treated to levels of 1 mg/l or less. Documents describing analytical capability are included as item 30 of the administrative record for this permit.

The two main policy issues included: (1) the degree to which the MMD-1 could be setup and tested before the permit was issued; and (2) heath risk, safety and contractual issues related to management of waste by a transporter and at permitted incineration facilities outside of Army control.

Risks associated with management of neutralized chemical agent wastes were addressed as part of the permitting process (Attachment 1, Sections 9.5, 9.11 and 9.12). The Army also prepared a risk assessment that addresses transportation of the neutralized chemical agent waste from Dugway to an off site permitted incineration facility. This risk assessment is included as item 31 of the administrative record for this permit.

Standards for operation and closure are based on values presented in documents prepared by the U.S. Army and the U.S. Surgeon General. For example, the U.S. Army Surgeon General vapor limits for the permissible 8 -hour work place exposure to chemical agent vapor and the Surgeon General drinking water standards are both used as standards in the permit. These standards are used to show that the system has been adequately decontaminated for reuse.

Condition III.D of the draft permit requires that special arrangements be made between the Army and off site waste managers. These conditions are designed to reduce risk to workers at off site laboratories and waste management facilities.

Review of Permit Contents

The permit includes three modules and 11 attachments. The modules specify basic legal, inspection and operating conditions. The attachments detail bench scale testing of agent mixed with decontamination solution and procedures for waste analysis, waste processing, system operation, inspections, emergency procedures, security, monitoring, personnel training and closure. The Administrative record lists other documents that were reviewed as part of the permitting process for the MMD-1.

Regulatory Requirements

The specific regulatory requirements applicable to the MMD-1 are found in R315-3-1, 3-5, 3-6, 3-7 through 3-17, 3-22 through 3-29, 8-1 through 8-5, 8-7 through 8-10 and 8-16 for miscellaneous units. The requirements describing the public involvement process are (R315-3-24 through 3-29) attached to this fact sheet.